

## ABSTRACT

The present invention relates to a new polypeptide and the gene coding therefore, gene being an evolutionarily conserved actin-binding protein, called STARS (striated muscle activator of Rho signalin), that is expressed specifically in cardiac and skeletal muscle cells and is upregulated in response to calcineurin signaling during cardiac hypertrophy. STARS is localized to the thin filament of the sarcomere and to actin stress fibers where it promotes actin bundling. STARS stimulates the transcriptional activity of serum response factor (SRF) through a mechanism that requires actin bundling and Rho kinase activation. STARS provides a mechanism for selectively enhancing the transcriptional activity of SRF in muscle cells and for linking changes in actin dynamics to gene transcription. Also disclosed are methods of using the gene and protein in drug screening and therapy, including, for example, use of the gene in gene therapy to treat cardiovascular disease.